2-240220-200

HD200 Powerline Wall Mount F Adapter

CXP-HD200-WMEFe

Enterprise Edition

Manual

Declaration of Conformity

CE

Model: Corinex HD200 Powerline Wall Mount F

Manufacturer: Corinex Communications Corp.
1000-1090 West Pender Street
Vancouver, BC, V6E 2N7
Canada

Directives which Conformity is Declared:

EMC: 2004/108/EC
LVD: 2006/95/EC
R&TTE: 1999/5/EEC
RoHS: 2002/95/EC
WEEE: 2002/96/EC

Standards which Conformity is Declared:

EN 55022: 2006 (Class B)
EN 55024: 1998 + AD1: 2001 + AD2: 2003
EN 61000-3-2: 2006
EN 61000-3-3: 2008
EN 50412-2-1: 2005
IEC 60950-1: 2001 and/or EN 60950-1: 2006

The undersigned hereby declares the above specified equipment conforms to the above directives and standards.

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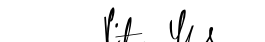
Signature: 

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1 Introduction

1.1 Overview

The *Corinex HD200 Powerline Wall Mount F* is a network interface adapter which uses the electric power lines already in your home or office as a medium for communication. After successful installation, the HD200 Powerline network behaves like a traditional LAN for computers. The *Corinex HD200 Powerline Wall Mount F* supports up to 200 Mbps network speed.

The advantage of our product is that it keeps network maintenance costs low and eliminates usage barriers, while requiring no additional wiring. It is highly integrated, and requires no external electronic components.

The *Corinex HD200 Powerline Wall Mount F*:

- Enables users to connect individual PCs or other devices with Ethernet communications links into a local area network through existing electrical power lines
- Enables PC file and application sharing
- Enables peripheral and printer sharing through the powerline network
- Enables shared broadband Internet access
- Enables sharing of bandwidth for multimedia payloads, including voice, data, audio and video
- Eliminates the need for long network cables throughout your home or office
- A real, cost-effective, and reliable solution for high-speed communications in any home or small office

1.2 About this Manual

This User Guide includes everything you need to know to help you successfully install the *Corinex HD200 Powerline Wall Mount F* and meet your networking needs. With the information in this manual, you should be able to:

- Analyze your network efficiency
- Plan the configuration of your *Corinex HD200 Powerline Wall Mount F*
- Install and configure your *Corinex HD200 Powerline Wall Mount F* according to your plan
- Verify and optimize the performance of your *Corinex HD200 Powerline Wall Mount F*

2 Installation Guide

2.1 What this Package Contains

When you receive your *Corinex HD200 Powerline Wall Mount F*, check to be sure that your package contains:

- *Corinex HD200 Powerline Wall Mount F* (2 for dual pack)
- Standard Ethernet cable (2 for dual pack)
- CD with documentation

We are constantly innovating our products. For the latest hardware/software changes, downloads, and additional information on your device, please visit **www.corinex.com.**

2.2 System Requirements

In order to follow the procedures described in this document, it is recommended to have a PC equipped with a fast ethernet network card and running MS Windows 2000 or later version. The computer must have one static IP assigned to its network interface.

2.3 Recommended Software

Certain tools are required to configure and access the HD200 Powerline Wall Mount F (also referred to as a modem). All these tools are available for Windows. In order to reduce the learning curve for these tools, the configuration process will be described here primarily for Windows-based tools.

Note: Corinex provides also a complete network management software suite called PowerNet allowing installation, configuration and monitoring of a BPL network. For more information please visit: **www.corinex.com/nms-software.html**

PowerNet™ Network Deployment Management System

The following tools can be downloaded and used free of charge:

- *Win Pcap* is a packet capture library required by Wireshark to sniff the packets arriving at the Ethernet port. It can be downloaded from: **http://www.winpcap.org/**
- *Wireshark* is a graphical packet capture tool used to inspect the traffic generated by the modem. It can be downloaded from: **http://www.wireshark.org/download.html**
- *HaneWin DHCP / TFTP server.* This is an easy to use DHCP + TFTP server all-in-one tool. It is very useful for configuring the modem at start-up. It can be downloaded from: **http://home.foni.net/~hanewin**

- Iperfis a network performance test tool. It is useful for testing the speed of a network link. It can be downloaded from: http://sourceforge.net/projects/iperf/

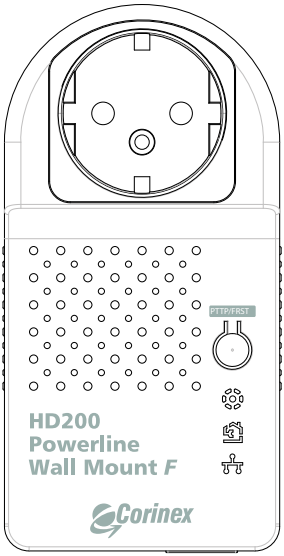
Note: If you want to analyze the performance of the adapters, make sure that there is no firewall or anti-virus software running on your system.

Similar tools are available for most Linux distributions.

2.4 Device Description

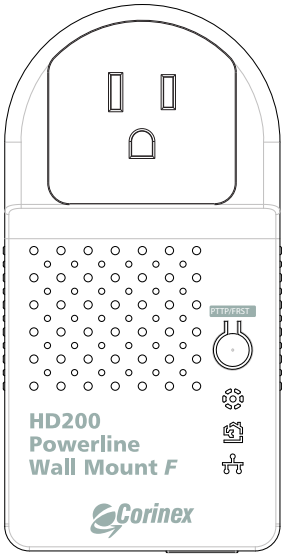
The adapter's physical appearance differs from region to region. The pictures below show the current plug versions of the adapter.

EU version



Ethernet port

NA version



Ethernet port

The adapter has one button and three LEDs to show different states. The tables on next page describe the functionality in detail. The Ethernet port is located on the bottom of the device; the male plug on the back of the device is used for Powerline communication. The filtered electrical outlet on top of the device makes the usage of the adapter easier, as other appliances can be plugged here in, so the Powerline Adapter does not block the wall outlet.

Button Description:

PTTP/FRST button

The button is used to select the PTTP mode and perform factory reset of the device.

- in order to change the **PTTP mode** of the device, press and hold the button for 3 seconds. The PTTP mode state is indicated by the AP LED (see below). If the PTTP mode is disabled, the AP LED will be green. If it's enabled, the AP LED will be amber.
- in order to perform **factory reset**, press and hold the Reset button for more than 10 seconds. The device will afterwards restart with factory default settings.

Note: PTTP (Parametric Translation Table Protocol) is a proprietary protocol enabling communication with management VLAN. It is described in detail in the AV200 ALMA autoconfiguration manual located on the Documentation CD (chapter PTTP protocol).

LED Description:

AP LED

This LED indicates several states of the adapter:

1. Status of the device (whether it's powered ON or OFF)
2. Status of PTTP mode (enabled or disabled)
3. Status of connection handled by Port Solver
4. Status of PLC connection
5. Status of configuration file download

If the AP LED is turned off, the device is turned off as well. If the LED is on, the device is powered on. The color and behavior of the LED varies in order to show different states mentioned above. Following table summarizes the behavior:

LED status	**Meaning**			
	PTTP mode	Port solver handles the connection	PLC connection established	Auto-configuration status
Green flashes every 2 seconds	disabled	in progress	N/A	N/A
Red/Green alternating	disabled	finished	in progress	N/A
Green flashes every 0.5 seconds	disabled	finished	finished	in progress
Green	disabled	finished	finished	finished

LED status	Meaning			
	PTTP mode	Port solver handles the connection	PLC connection established	Auto-configuration status
Amber flashes every 2 seconds	enabled	in progress	N/A	N/A
Red/Amber alternating	enabled	finished	in progress	N/A
Amber flashes every 0.5 seconds	enabled	finished	finished	in progress
Amber	enabled	finished	finished	finished

VPI LED

This LED shows if there is link and traffic activity on the Powerline interface as well as the estimated application throughput level.

LED Status	Meaning
Off	No link on Powerline interface
Red	Estimated Physical Throughput < Low Threshold
Amber	Low Threshold ≤ Estimated Physical Throughput < High Threshold
Green	Estimated Physical Throughput ≥ High Threshold
Blinking (in Red, Amber or Green)	Traffic on the Powerline interface

ETH LED

This LED indicates link and activity on the Ethernet interface.

LED status	Meaning
Off	The adapter has no link on Ethernet interface.
Green	There is a 100 Mbps link on Ethernet interface.
Amber	There is a 10 Mbps link on Ethernet interface.
Blinking (Green or Amber)	There is activity on the Ethernet interface.

2.5 Technical Specifications

Standards Compliance	IEEE 802.1D, 802.1p, 802.1Q, 802.3u
Speed	Up to 200 Mbps on physical layer
AC Plug Type	EU, US
LED Status Lights	AP, VPI, ETH
Interface	10/100BaseT Fast Ethernet, Powerline, AC Power Outlet, pushbutton
Frequency	2 – 34 MHz
Dimension (L x W x D)	134 mm x 68 mm x 41 mm (approx.)
Input Power	10 ~ 240 VAC, 50/60 Hz, 16 A
Output Power	10 ~ 240 VAC, 50/60 Hz, 16 A
Transmitted Power spectral density	-58 dbm/Hz
Power Consumption	3.85 W (max)
Safety & EMI	UL/EN 60950, FCC Part 15 B, EN 55022 EMC Limits
Operating Temperature	0 ~ 40°C (32 ~ 104°F) with humidity 10% ~ 80% non-condensing
Storage Temperature	10 ~ 70°C (14 ~ 158°F) with humidity 5% ~ 95% non-condensing

2.6 Factory Default Modem Configuration

All Enterprise modems are set to run the auto-configuration process by default. This process uses DHCP and TFTP to obtain the network settings and modem configuration. It also uses a proprietary protocol called PTTP (Parametric Translation Table Protocol) to communicate with the management VLAN.

2.7 Connecting the HD200 Powerline Wall Mount F

To connect the Powerline adapter to your computer, follow the steps listed below.

1. Connect the supplied Ethernet cable to the Ethernet (LAN) port on the adapter, and to an Ethernet port on your computer.
2. Plug the adapter directly into any standard electrical outlet.

Note: The Powerline adapter should be plugged directly into a wall outlet, not into a power strip or surge suppressor. Power strips and surge suppressors can weaken or block the Powerline network signal.

3 Starting Up the Modem

It is advisable to run Wireshark during the start-up and configuration of the modem in order to ascertain the correct execution of this process and diagnose potential configuration problems.
The first sign of life exhibited by the modem is the Spanning Tree Protocol (STP) packets. After a few STP packets, the modem will issue a DHCP discovery packet, as shown in Figure 1.

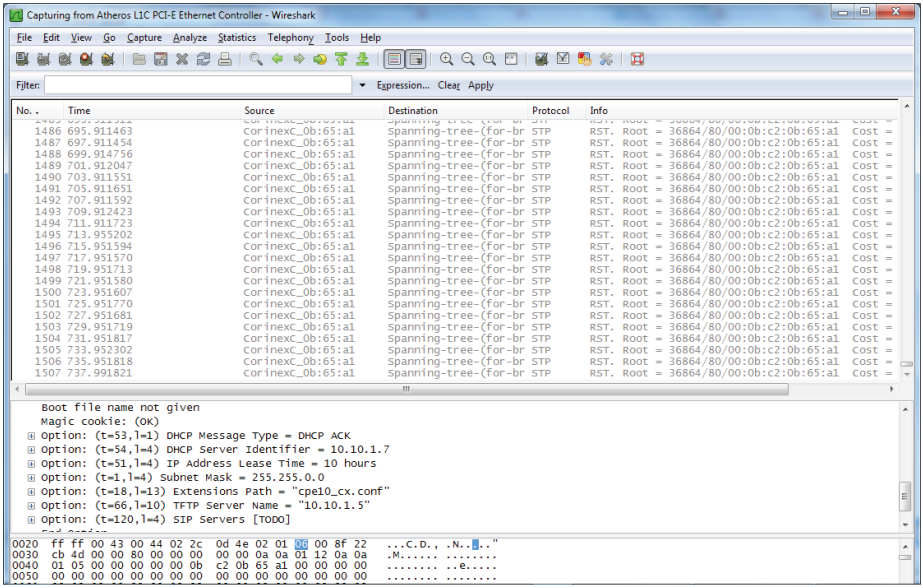

Capturing from Atheros L1C PCI-E Ethernet Controller - Wireshark
File Edit View Go Capture Analyze Statistics Telephony Tools Help
Filter: Expression... Clear Apply
No. . Time Source Destination Protocol Info
1486 695.911463 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1487 697.911454 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1488 699.914756 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1489 701.912047 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1490 703.911551 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1491 705.911651 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1492 707.911592 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1493 709.912423 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1494 711.911723 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1495 713.955202 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1496 715.951594 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1497 717.951570 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1498 719.951713 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1499 721.951580 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1500 723.951607 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1501 725.951770 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1502 727.951681 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1503 729.951719 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1504 731.951817 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1505 733.952302 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1506 735.951818 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1507 737.991821 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
Boot file name not given
Magic cookie: (OK)
Option: (t=53,l=1) DHCP Message Type = DHCP ACK
Option: (t=54,l=4) DHCP Server Identifier = 10.10.1.7
Option: (t=51,l=4) IP Address Lease Time = 10 hours
Option: (t=1,l=4) Subnet Mask = 255.255.0.0
Option: (t=18,l=13) Extensions Path = "cpe10_cx.conf"
Option: (t=66,l=10) TFTP Server Name = "10.10.1.5"
Option: (t=120,l=4) SIP Servers [TODO]
0020 ff ff 00 43 00 44 02 2c 0d 4e 02 01 06 00 8f 22 ...C.D., .N.....
0030 cb 4d 00 00 80 00 00 00 00 00 0a 0a 01 12 0a 0a .M..... ....
0040 01 05 00 00 00 00 00 0b c2 0b 65 a1 00 00 00 00 ....e.....
0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ....

Figure 1: Packet trace of the startup of the modem

If you cannot see the DHCP packets coming from the modem, the possible causes include:

- The firewall is filtering out these packets
- You are not running Wireshark on the physical Ethernet interface
- The adapter does not have the factory-default configuration
- The adapter is booting in NVRAM mode and is set with static IP settings.

Note: In order to see the DHCP discovery, Factory reset is suggested.

4 Topology with HD200 Enterprise device

The HD200 Powerline Wall Mount F can be used only as a slave (CPE, Customer Premises Equipment). In order to create a simple network, another adapter from Corinex's portfolio (such as Low Voltage Gateway, High Density Gateway or High Density Building Controller) has to be used as master device.

Figure 2 below shows a sample network scenario containing 3 HD200 Wall Mount F adapters as CPEs (Customer Premises Equipment) together with a master device (Low Voltage Gateway).

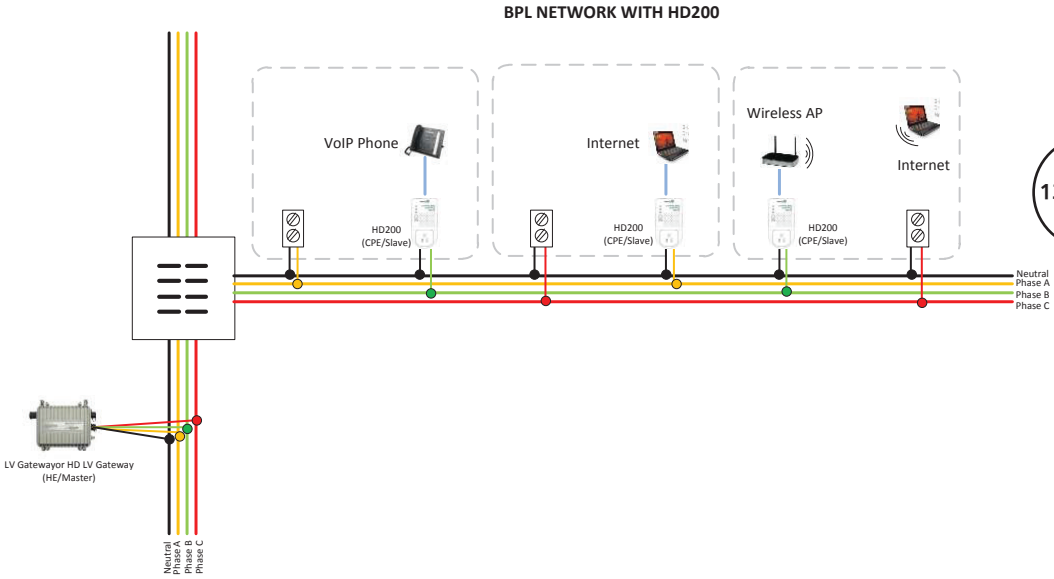


Figure 2: BPL Network with HD200 Enterprise adapters

5 Configuring the DHCP / TFTP Server

The HaneWin DHCP / TFTP server works based on profiles. For every lease, there is a profile assigned. For a basic network, only two profiles are needed: a Master profile and a Slave profile. The parameters defined in a profile are as follows:

- Netmask
- Gateway
- TFTP server IP
- Auto-configuration file name
- DHCP extensions

Upon receipt of the DHCP reply, the modem will download the specified auto-configuration file from the given IP address.
The first thing you need is a basic set of auto-configuration files. You can use the examples provided in section 7 as a baseline. Create a new directory and add to it those two files.
You must then specify this directory in the DHCP application, under **Options** > **Preferences**.
On the "**Interfaces**" tab, check the option "**Respond to registered (static) addresses/identifiers only**". Please pay attention to selection of interfaces.

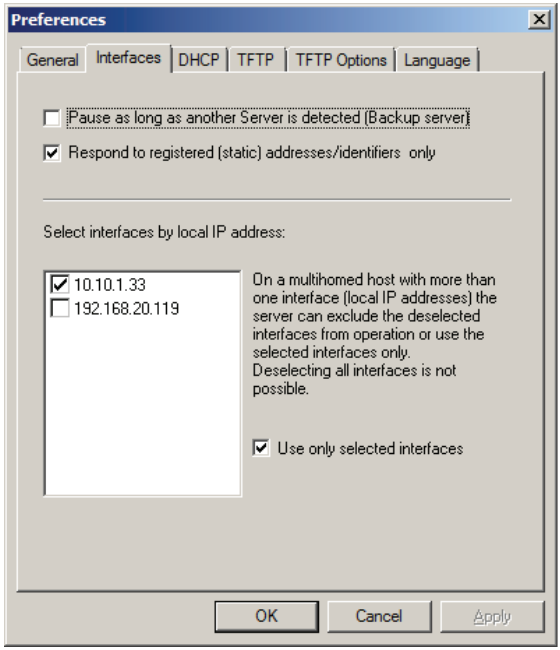

Preferences
General
Interfaces
DHCP
TFTP
TFTP Options
Language
Pause as long as another Server is detected (Backup server)
Respond to registered (static) addresses/identifiers only
Select interfaces by local IP address:
10.10.1.33
192.168.20.119
On a multihomed host with more than one interface (local IP addresses) the server can exclude the deselected interfaces from operation or use the selected interfaces only. Deselecting all interfaces is not possible.
Use only selected interfaces
OK
Cancel
Apply

Figure 3: Interfaces tab settings

Then go to the "**TFTP**" tab and set "**TFTP Root Directory**" to the directory where the configuration files are, as shown in figure 4.

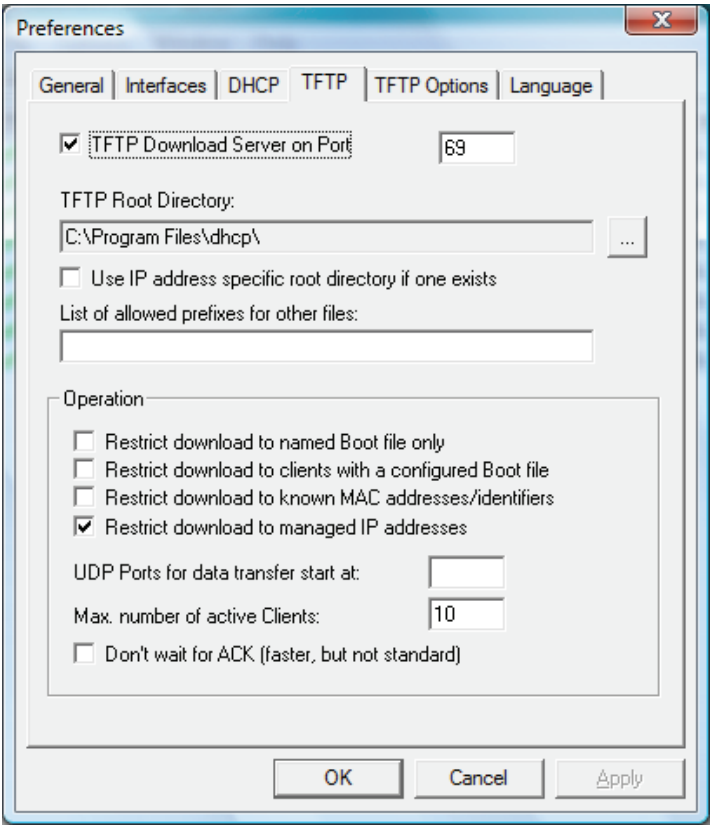


Figure 4: Setting the auto-configuration files directory

The next step is to create a profile. To create the *Master profile*, follow these instructions:

1. Go to **Options** > **Manage Profiles**
2. Type the name of the profile (e.g. "Master") in the lower window and click "**Add**". A new window will pop up (see figure on next page).
3. In the tab, "**Basic Profile**", set a subnet mask that is compatible with your computer settings. Under gateway, enter the static IP of your computer or leave it blank.

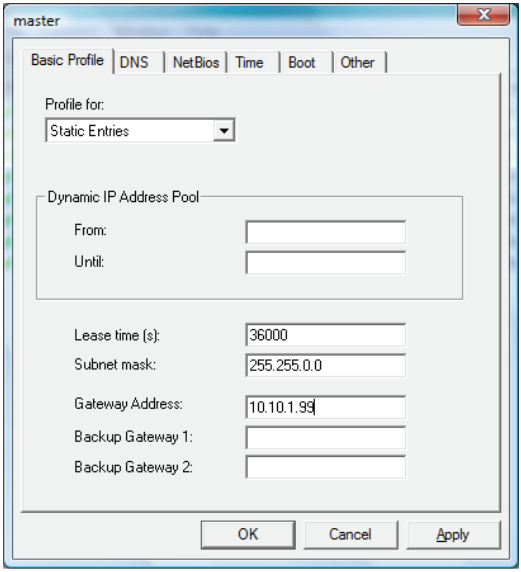


Figure 5: Basic profile

4. In the tab, "**Boot**", type the IP address of your computer under "**Next Server IP Address**" and "**Name**". Then check the option, "**Always use option 66/67 for Name and File**".

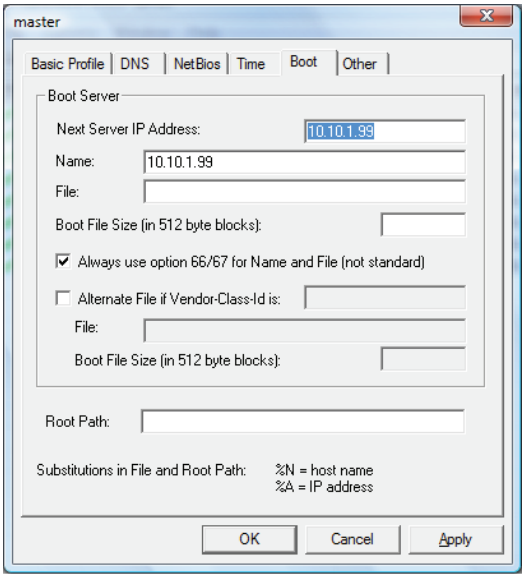


Figure 6: Boot tab

5. In the tab, "**Other**", select option **18** and type in the name of the Master configuration file (e.g. "Master.conf"). Then click "**Add**" to add this option.
6. In the same tab, add option **120** with binary value "**0 0 0 0**".

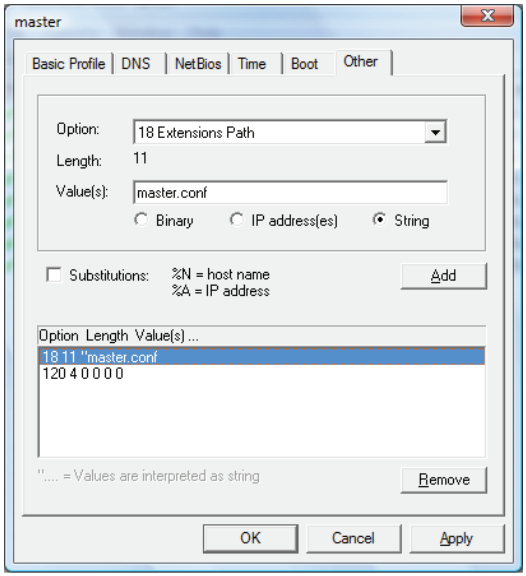


Figure 7: Other tab

Now repeat the same steps to create the Slave profile. The only difference is the name of the auto-configuration file under extension 18; it must be "Slave.conf".
Once you have the profiles, you can proceed to assign a profile to each of your modems. This assignment is made based on the MAC address. Choose one of your modems to be the Master, and the rest will be Slaves.
In the main window of the HaneWin server, click the button labeled, "**New**" in the lower button bar. A new window will open, as shown in figure 8.
In this window, you must enter the MAC address of the modem, the IP address that you want assigned to this modem, and the configuration profile. When you click **OK**, it will create an entry in the static leases list.

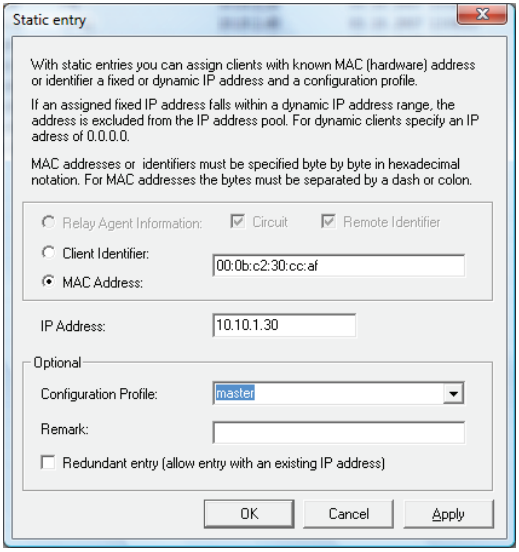

Static entry
With static entries you can assign clients with known MAC (hardware) address or identifier a fixed or dynamic IP address and a configuration profile.
If an assigned fixed IP address falls within a dynamic IP address range, the address is excluded from the IP address pool. For dynamic clients specify an IP adress of 0.0.0.0.
MAC addresses or identifiers must be specified byte by byte in hexadecimal notation. For MAC addresses the bytes must be separated by a dash or colon.
Relay Agent Information:
Circuit
Remote Identifier
Client Identifier:
MAC Address:
00:0b:c2:30:cc:af
IP Address:
10.10.1.30
Optional
Configuration Profile:
master
Remark:
Redundant entry (allow entry with an existing IP address)
OK
Cancel
Apply

Figure 8: Assigning an IP and a profile to a given modem (by MAC address)

Note that the MAC address must be typed with a colon (**:**) separating the bytes. You cannot assign the same IP address to two different modems running at the same time.
Once you have entered all the modems in the list, connect the device you want to operate as Master to your computer and connect the others via Powerline. Then switch them all on and wait for the DHCP requests to appear. At start-up time, all modems behave as Slaves. Then they search for a connection to the DHCP server, through Ethernet or Powerline, and finally, they will be configured (one as Master and the rest as Slaves).

If everything is properly configured, the Master will request an IP address first, and then each Slave will also request an IP address. The DHCP server reports the time and date of the last request in the static leases list.
If any of the modems does not get an IP address, the possible causes are:

- The MAC address was mistyped
- The modem does not have the factory-default configuration
- The modem is not linked to the Master

If none of the Slaves gets an IP, the probable cause is that the Master was not properly configured. If the Master modem does not become Master, the Slaves will not be able to find a network signal to link to.

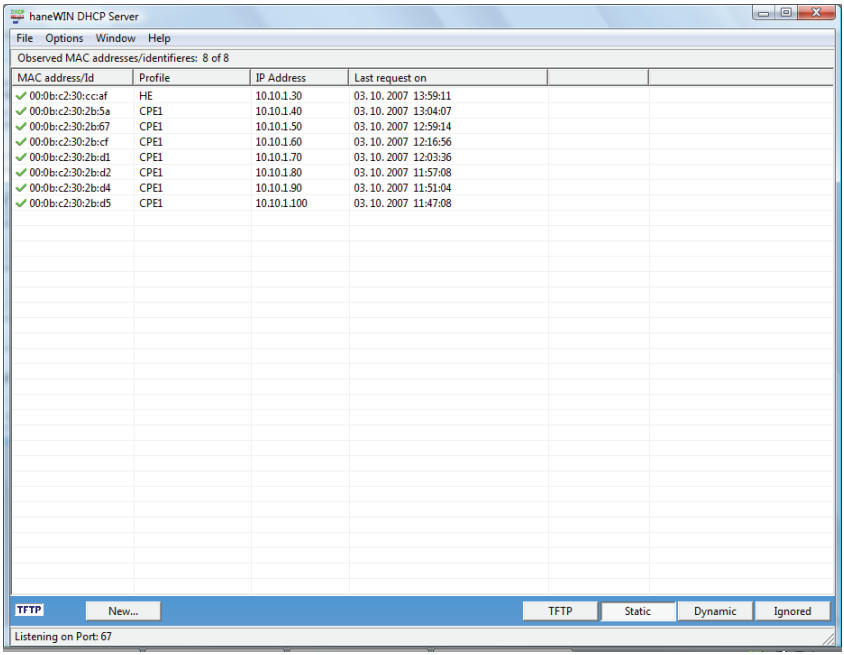


Figure 9: Static leases list, showing date and time of a recently configured node

6 Providing an IP Address

This section describes how to assign an IP address to the modem, without actually configuring the modem. As soon as the modem has an IP address, its web interface can be accessed via any web browser.

We will use the HaneWin DHCP server to provide a dynamic IP to the modem. Follow these steps to configure a dynamic range of IP leases (see figure 10):

1. Start the HaneWin DHCP server
2. Go to **Options** > **Default Client Profile**
3. In the "**Basic Profile**" tab, set a rule for "**Interface IP**"
4. Input a range for dynamic IP addresses, in the fields "**from**" and "**until**"
5. Input a subnet mask that is compatible with your computer.
6. In the tab, "**Other**", select option **120**. Then select type "**Binary**" and in the value field type "**0 0 0 0**" putting spaces between zeroes. Finally, click "**Add**".

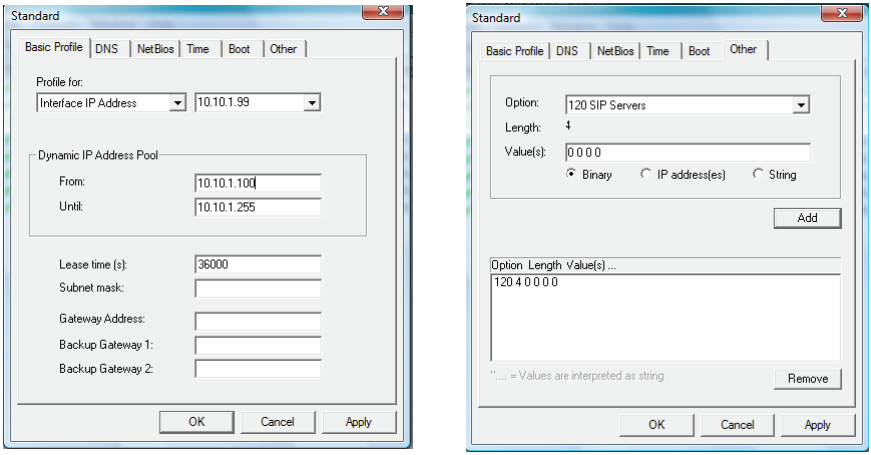


Figure 10: Configuration of the DHCP server for dynamic IP leases

Shortly after you click **OK**, the application will provide a dynamic IP address to the modem. This process is reflected in Wireshark as shown in figure 11.
The option 120 is used to disable PTTP in the DHCP response. This will prevent the modem from trying to obtain the management VLAN from another Powerline modem. In some cases, the PTTP has been known to interfere with Windows XP network services.

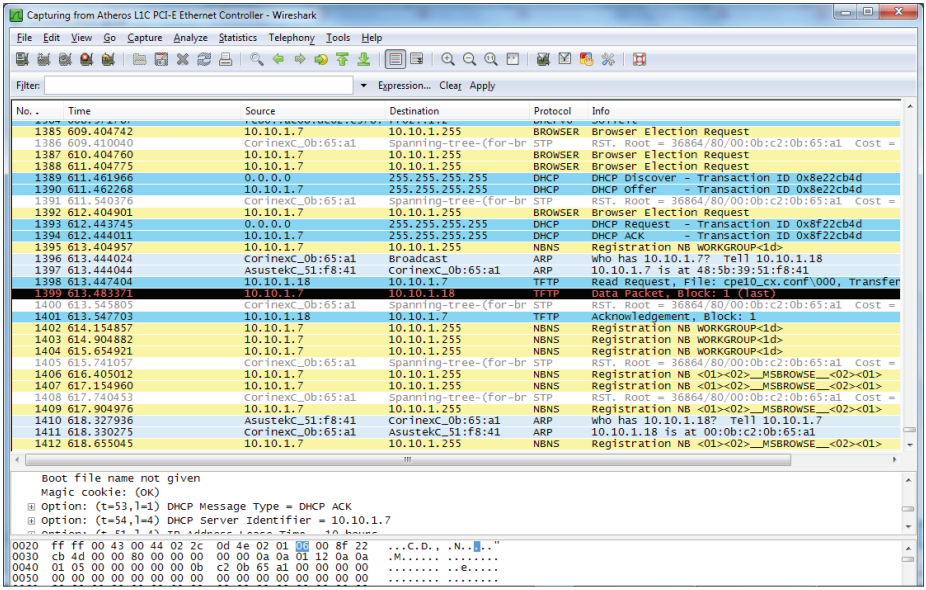

Capturing from Atheros L1C PCI-E Ethernet Controller - Wireshark
File Edit View Go Capture Analyze Statistics Telephony Tools Help
Filter: Expression... Clear Apply
No. . Time Source Destination Protocol Info
1385 609.404742 10.10.1.7 10.10.1.255 BROWSER Browser Election Request
1386 609.410040 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1387 610.404760 10.10.1.7 10.10.1.255 BROWSER Browser Election Request
1388 611.404775 10.10.1.7 10.10.1.255 BROWSER Browser Election Request
1389 611.461966 0.0.0.0 255.255.255.255 DHCP DHCP Discover - Transaction ID 0x8e22cb4d
1390 611.462268 10.10.1.7 255.255.255.255 DHCP DHCP Offer - Transaction ID 0x8e22cb4d
1391 611.540376 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1392 612.404901 10.10.1.7 10.10.1.255 BROWSER Browser Election Request
1393 612.443745 0.0.0.0 255.255.255.255 DHCP DHCP Request - Transaction ID 0x8f22cb4d
1394 612.444011 10.10.1.7 255.255.255.255 DHCP DHCP ACK - Transaction ID 0x8f22cb4d
1395 613.404957 10.10.1.7 10.10.1.255 NBNS Registration NB WORKGROUP<1d>
1396 613.444024 CorinexC_0b:65:a1 Broadcast ARP Who has 10.10.1.7? Tell 10.10.1.18
1397 613.444044 AsustekC_51:f8:41 CorinexC_0b:65:a1 ARP 10.10.1.7 is at 48:5b:39:51:f8:41
1398 613.447404 10.10.1.18 10.10.1.7 TFTP Read Request, File: cpe10_cx.conf\000, Transfer
1399 613.483371 10.10.1.7 10.10.1.18 TFTP Data Packet, Block: 1 (last)
1400 613.543805 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1401 613.547703 10.10.1.18 10.10.1.7 TFTP Acknowledgement, Block: 1
1402 614.154857 10.10.1.7 10.10.1.255 NBNS Registration NB WORKGROUP<1d>
1403 614.904882 10.10.1.7 10.10.1.255 NBNS Registration NB WORKGROUP<1d>
1404 615.654921 10.10.1.7 10.10.1.255 NBNS Registration NB WORKGROUP<1d>
1405 615.741057 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1406 616.405012 10.10.1.7 10.10.1.255 NBNS Registration NB <01><02>__MSBROWSE__<02><01>
1407 617.154960 10.10.1.7 10.10.1.255 NBNS Registration NB <01><02>__MSBROWSE__<02><01>
1408 617.740453 CorinexC_0b:65:a1 Spanning-tree-(for-br STP RST. Root = 36864/80/00:0b:c2:0b:65:a1 Cost =
1409 617.904976 10.10.1.7 10.10.1.255 NBNS Registration NB <01><02>__MSBROWSE__<02><01>
1410 618.327936 AsustekC_51:f8:41 CorinexC_0b:65:a1 ARP Who has 10.10.1.18? Tell 10.10.1.7
1411 618.330275 CorinexC_0b:65:a1 AsustekC_51:f8:41 ARP 10.10.1.18 is at 00:0b:c2:0b:65:a1
1412 618.655045 10.10.1.7 10.10.1.255 NBNS Registration NB <01><02>__MSBROWSE__<02><01>
Boot file name not given
Magic cookie: (OK)
Option: (t=53,l=1) DHCP Message Type = DHCP ACK
Option: (t=54,l=4) DHCP Server Identifier = 10.10.1.7
0020 ff ff 00 43 00 44 02 2c 0d 4e 02 01 06 00 8f 22 ...C.D., .N......"
0030 cb 4d 00 00 80 00 00 00 00 00 0a 0a 01 12 0a 0a .M..... ....
0040 01 05 00 00 00 00 00 0b c2 0b 65 a1 00 00 00 00 ....e.....
0050 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ....

Figure 11: DHCP configuration process

The process involves 4 steps: DHCP discovery, DHCP offer, DHCP request and DHCP acknowledgement. Discovery and request are issued by the modem, while offer and acknowledgement are issued by the client computer.
Once the modem has an IP address, you should be able to ping it.

7 Writing an Auto-configuration File

There are hundreds of parameters that can be configured on a modem. These parameters are assigned in the configuration file, which is a human-readable text file. The configuration file can have any name (not including spaces) and any extension. The explanation of all possible parameters can be found in a separate document called AV200 ALMA auto-configuration manual, which can be found on the Documentation CD.

For a basic network with one Master and several Slaves, only two configuration files are needed. The simplest configuration file for a Master (Low Voltage, High Density Gateway, High Density Building Controller) is shown in figure 12. Figure 13 presents the simplest configuration file for a Slave (HD200 Enterprise devices).

```
# File: master.conf

# General parameters
GENERAL_USE_AUTOCONF = yes
GENERAL_MAC_MODE = ACCESS

# Configure the node as Master (HE)
GENERAL_TYPE = HE
GENERAL_FW_TYPE = LV
GENERAL_AUTHENTICATION = none
GENERAL_STP = yes

# Signal parameters
GENERAL_SIGNEL_MODE = 6
AGC_TX_GAIN = 0

# QoS Configuration
QOS_ENABLE = no

# vlan configuration
VLAN_ENABLE = no

# Ovlan configuration
OVLAN_ENABLE = no
```

Figure 12: Simplest Master configuration

```
# File: slave.conf

# General parameters
GENERAL_USE_AUTOCONF = yes
GENERAL_MAC_MODE = ACCESS

# Configure the node as Slave (CPE)
GENERAL_TYPE = CPE
GENERAL_FW_TYPE = LV
GENERAL_AUTHENTICATION = none
GENERAL_STP = yes

# Signal parameters
GENERAL_SIGNAL_MODE_LIST.1 = 6
GENERAL_SIGNAL_MODE_LIST.2 = 1
GENERAL_SIGNAL_MODE_LIST.3 = 2
GENERAL_SIGNAL_MODE_LIST.4 = 3
GENERAL_SIGNAL_MODE_LIST.5 = 13
AGC_TX_GAIN = 0

# QoS Configuration
QOS_ENABLE = no

# vlan configuration
VLAN_ENABLE = no

# Ovlan configuration
OVLAN_ENABLE = no
```

Figure 13: Simplest Slave configuration

With these two files and some configuration on the DHCP / TFTP server, a simple one-level network can be built.

Note: The HD200 Powerline Wall Mount F can be used only as a slave (CPE, Customer Premises Equipment). In order to create a simple network as described above, another adapter from Corinex's portfolio has to be used as master device.

8 Device specific parameters

This chapter describes autoconfiguration parameters and MIBs, that are specific for the Corinex HD200 Powerline Wall Mount F. The general parameters can be found in the remaining two documents: Alma auto-configuration and SNMP manual.

8.1 Enable/disable multicast aging

A new functionality was added in the firmware to enable/disable multicast aging. In the auto-configuration file it is added as parameter:

MCAST_IGMP_AGING = [yes|no]

Default value is “yes”.

8.2 Enable/disable interface EXTA

It is possible to enable/disable the interface EXTA (Ethernet) by using either auto-configuration file or SNMP.

A new parameter is added in auto-configuration file in order to enable/disable the interface EXTA:

DISABLE_EXTA = [yes|no]

Default value is “no”.

Alternatively the interface EXTA can be enabled or disabled using SNMP:

```
private(4)
 enterprises(1)
   ds2 (6798)
     wisconsin (3)
       corinexMAC (20)
          plCorinexDisExtA(2)
            plDisExtA (1)
                      (0)   INTEGER   rw   enable/disable interface EXTA.
```

8.3 Show all MAC addresses for interface EXTA

It's possible to show all MAC addresses on interface EXTA by using SNMP:

```
private(4)
 enterprises(1)
  ds2 (6798)
   wisconsin (3)
    corinexMAC (20)
     plCorinexExtA (1)
      plMACEXTATable (1)
       plMACEXTAEntry (1)
        plMACEXTAIndex  (1)  INTEGER       ro  Index of the MACs.
        plMACEXTAMAC  (2)   PhysAddress  ro  MAC addresses on port EXTA
```

8.4 Node number

A new parameter NODE_NUMBER is added in each configuration file. It allows configuration of node number of the adapter.

The parameter NODE_NUMBER has to be placed before the parameter GENERAL_TYPE.

A valid value for the parameter is 1 ~ 99. Factory default value is 0.

9 Troubleshooting Guide

The Corinex HD200 Powerline Wall Mount F has been designed to be a reliable and easy-to-use network connection device. Please refer to the list below to aid in troubleshooting.

The AP LED is off.

1. Make sure the power adapter is properly plugged directly into the electrical outlet, and that the outlet has power.
2. Try another outlet.

The VPI LED is off (no connectivity between adapters).

1. Make sure the Powerline adapter is plugged directly into the outlet, rather than into a surge suppressor or power strip. The current model of the Powerline adapter is not designed to function through a surge suppressor.
2. Try another outlet.

The ETH LED is off.

1. Make sure the adapter is connected with an Ethernet enabled device with an RJ-45 cable and both devices are powered on.

If the trouble persists, please visit www.corinex.com and go to the appropriate section for information on your product. There you will find news, manuals and software updates, as well as frequently asked questions (FAQ).

To avoid personal injury and damage to the system:

1. The principal method to disconnect the device completely from the electrical power network (mains) is to unplug the power cord from the mains socket.
2. Never install the unit in wet areas or next to radiators/heaters.
3. Never use the unit outside.
4. Unplug the unit during severe storms.
5. Never open the equipment enclosure.

If, using the information sources listed above, you are not able to find a solution to the problems you are experiencing, please send us a description of the problem via **http://www.corinex.com**. We will need all possible information about your devices and your network in order to help you. This includes:

- Types of devices you have, if possible with serial numbers (printed on the safety labels)
- Which of these devices are working incorrectly or don't work at all (indicate

the problems)

- If it's possible, send us a scheme of your network topology also with the IP addresses for computers/router/access point, this can speed up the problem estimation. If you use any non-Corinex equipment, please specify what kind. The drawing can be made in any graphics editor, exported to one of the standard graphic formats (JPEG, GIF). Or you can just draw it on paper and scan it
- Specify operating systems used with the devices
- Please send us the firmware version and configuration of these devices. Please see the user guide for detailed instructions on this.